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THE ORIGINS OF CIVILIZATION—II

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THE evidence for the possession of domestic animals is not as old as that for agriculture. The bodies from the earliest Egyptian cemeteries contain fragments of bones of mammals, but there is no way to prove that these necessarily small fragments belonged to *domesticated* mammals. Nevertheless, the results of long continued selective breeding demonstrate the remote origin of domestic animals in the Nile valley. At the same time the monuments reveal the Egyptians as persistently practising domestication far down in the historic age.

Pre-dynastic reliefs (Fig. 24) to be dated not later than the middle of the fourth millennium B.C., already show us three of the commonest domestic animals, the donkey, sheep and cattle. The domesticated donkey of Egypt was long ago demonstrated by Schweinfurth and others to have had its original home in northeast Africa and to have been domesticated on the Nile. Its wild ancestor, *Asinus tæniopus*, or the steppe ass, is still found as far north as the mountains of southern Nubia.¹⁸

The sheep shown in this carving still display primitive characteristics, carried over into the domesticated state, *e. g.*, standing ears and a mane, and the female with horns, which she later lost. They have been identified as *Ovis longipes palæoægypticus* by Duerst and Gaillard. Their nearest relatives, as both these two scientists admit, are still scattered over north and northeast Africa to-day. It is the more remarkable that these two paleontologists would draw this sheep from Asia. Lortet, on the basis of far more material, states that this sheep (*Ovis longipes pal.*) with transverse horns, spirally twisted, has so many and so widely distributed relatives in north Africa, that he must be considered as indigenous there.¹⁹

Regarding the large cattle shown here the paleontologists have differed widely, with perhaps a majority maintaining his Asiatic origin, due to the fact that they were unable to find an unmistakable wild ancestor in Africa. His alleged Asiatic origin has been commonly asserted in popular books, coupled with such a remote date for his domestication, and his intro-

¹⁸ Schweinfurth, *Zeitschr. f. Ethn.*, 44, 1912, pp. 653-654.

¹⁹ Lortet-Gaillard, "La Faune Momifiée de l'ancienne Egypte," Lyons, 1905, p. 100.

duction into Egypt by some mysterious and unidentifiable immigrants alleged to have brought in Egyptian civilization from Asia, that we now find a widely circulating popular statement, to the effect that the Asiatic origin of Egyptian domestic animals has demonstrated the Asiatic origin of Egyptian civilization.

Both the monuments and the still largely unexplored Pleistocene strata of Egypt contain much evidence on this question.



FIG. 24. EGYPTIAN RELIEF CARVED IN SLATE, DATING ABOUT THE MIDDLE OF THE FOURTH MILLENNIUM, B.C. Showing domesticated sheep (below), donkeys (middle), and cattle (above), captured from the Libyans. Now in the National Museum at Cairo.

It quickly disposes of the Asiatic origin of these long-horned cattle. Much inscriptional evidence has shown that the Egyptians practised the hunting of wild cattle, but a relief in Benihasan which shows these cattle as spotted has led to the conclusion that such alleged wild cattle were really domestic breeds which had escaped from captivity and were running wild. The discovery of a relief of the Pyramid Age showing a hunting enclosure (Fig. 25) filled with game to be brought down by the royal arrows, has effectually disposed of this conclusion. Among the game entrapped in the enclosure we find a cow, a

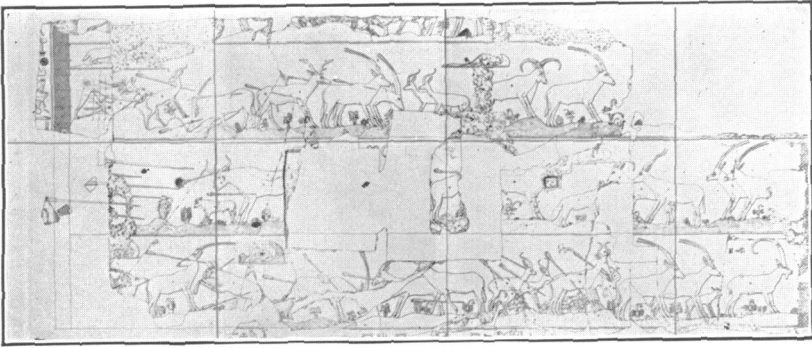


FIG. 25. ANCIENT EGYPTIAN RELIEF SHOWING A ROYAL HUNTING ENCLOSURE FILLED WITH WOUNDED ANIMALS. From the pyramid temple of Sahure, middle of the 28th century B.C. (After Borchardt.)

calf and a bull, all of a red brown color with a lighter saddle. These are unquestionably long-horned wild cattle, identified by Hilzheimer as *Bos africanus*. Pleistocene wild cattle have been proven to have existed in Algiers, and this evidence is now supplemented by the discovery of the fragment of a head of *Bos primigenius* in the Nile valley, in the Pleistocene deposits of the Fayum. The presence of the Urus thus demonstrated in Egypt has led Hilzheimer to recognize the wild cattle in this hunting scene also as the *Bos primigenius*. In any case it is totally gratuitous to identify any longer the long-horned cattle of Egypt with an Asiatic species.

It is very instructive in this connection to notice that the Egyptian continued his efforts at domestication on a wide range of wild creatures, far down into the historic epoch. In the scene under discussion (Fig. 25), dating from the middle of the twenty-eighth century B.C., we see the enclosure, which has been well said to be of itself a long step toward domestication. Here have been caught the deer, the gazelle, the oryx, the addax, and two varieties of goat. Of the leading Egyptian antilopes only the ibex is lacking. The practice of capturing these animals in an enclosure evidently very early showed the Egyptian that he might in this way maintain a store of meat on the hoof from which he could conveniently draw at will. In this way, for example, the Tschuktchi of northeast Asia maintain herds of half-domesticated reindeer, which they employ only as sources of flesh and skin clothing. These wild creatures taken out of such enclosures alive were then stall-fed and partially if not wholly domesticated. We see them in the tomb reliefs between 3000 and 2500 B.C. (e. g., Fig. 26), along with the long-horned *Bos africanus*, tied to their mangers and feeding. Here are the goat (*Hircus mambrinus*), the gazelle (*Ga-*

zella dorcas), the addax (*Addax nasomaculata*), the oryx (*Oryx leucoryx*) and remarkably enough, the hyena (*Hyæna striata*).

The inscriptions confirm these relief pictures very conclusively. A mortuary text of the Middle Kingdom (around 2000 B.C.) mentions "ibexes which eat grain." Similarly already in the twenty-seventh century B.C., the tomb of Kegemni mentions "stables of the plateau antilopes" (Fig. 27). There were thus "stables" for these creatures, parallel with the stables for the large cattle, and designated by the same word. It is of course a scene from one of these stables which shows these animals eating at their mangers (Fig. 26).

These animals therefore formed a staple source of the food supply and we find them in process of being slaughtered for food, precisely as is done with the large cattle (Fig. 28). Hence at an inspection of the cattle of an estate, these creatures which we have never thought of as domesticated, duly appear together with the long-horn cattle familiar to us as domestic animals (Fig. 29).

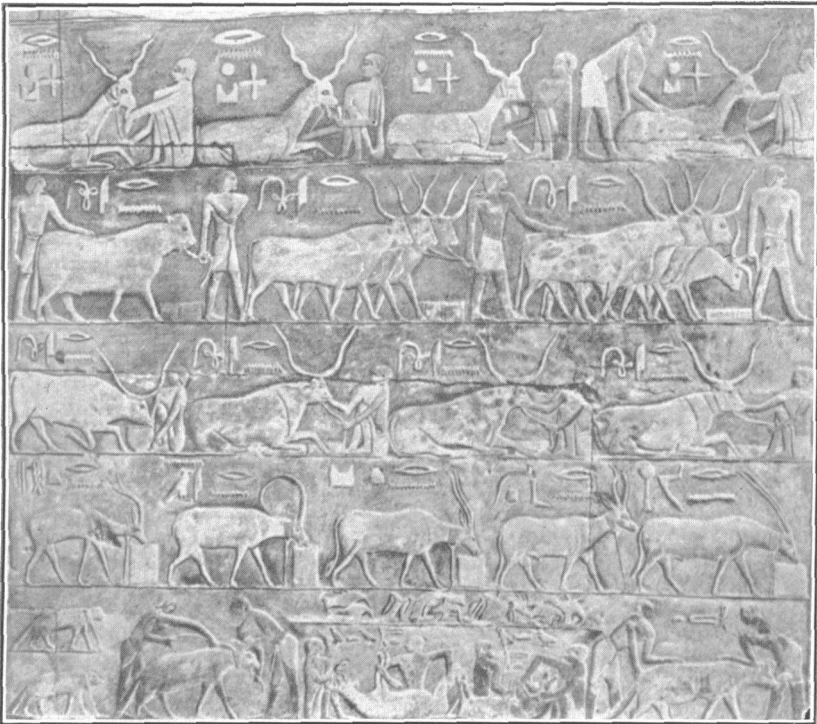


FIG. 26. STALL FEEDING OF SEMI-DOMESTICATED ANTILOPES (FIVE VARIETIES) AND HYENAS, ALONG WITH CATTLE. Relief scene in the tomb of Mereruka at Sak-kara, Egypt, 27th century B.C.

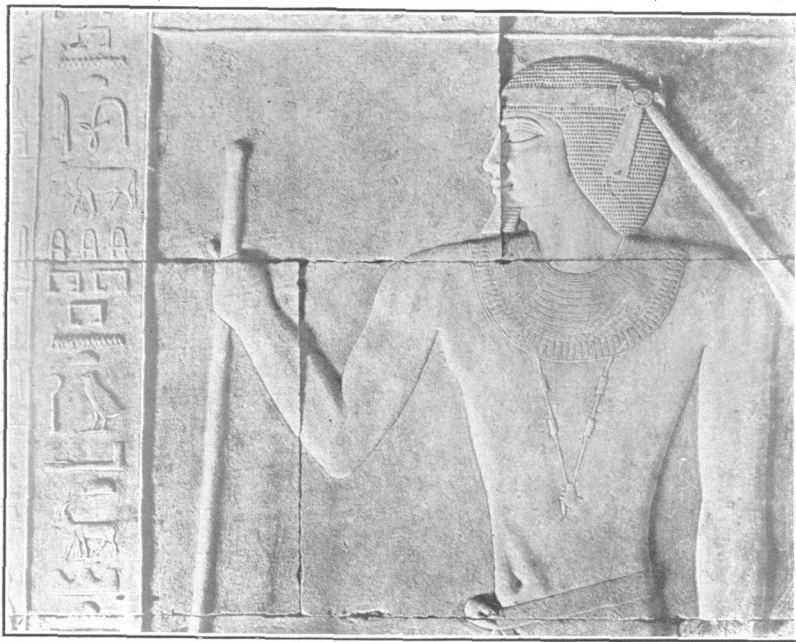


FIG. 27. PORTRAIT OF A GREAT LORD OF THE PYRAMID AGE NAMED KEGEMNI. Accompanied by his titles as "Chief of the Stables of Cattle and Chief of the Stables of the Plateau Antilopes." Relief in his tomb at Sakkara, Egypt, 26th or 27th century B.C.

In the same way, after domesticating varieties of the goose and duck, the Egyptians captured a varied list of wild fowl which they wholly or partially domesticated, although this list did not include our barnyard fowl, which was introduced in the west from India from the seventh century B.C. onward. It will be seen, then, how widely extended and inclusive was the effort of the Egyptians at domestication. They were still continuing the task in historic times, and it went on throughout the third millennium, if not much later.

It is evident from the conditions among their domestic cattle, furthermore, that they had long been engaged in the process of

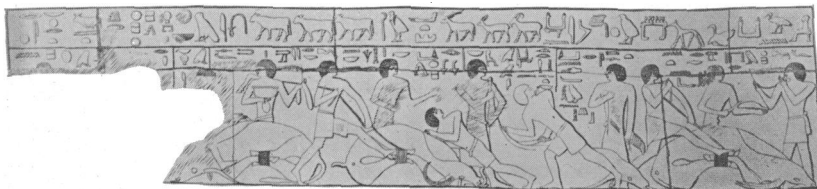


FIG. 28. BUTCHERING OF SEMI-DOMESTICATED ANTILOPES, SHOWN IN THE TOMB OF KEGEMNI. Compare Fig. 29.

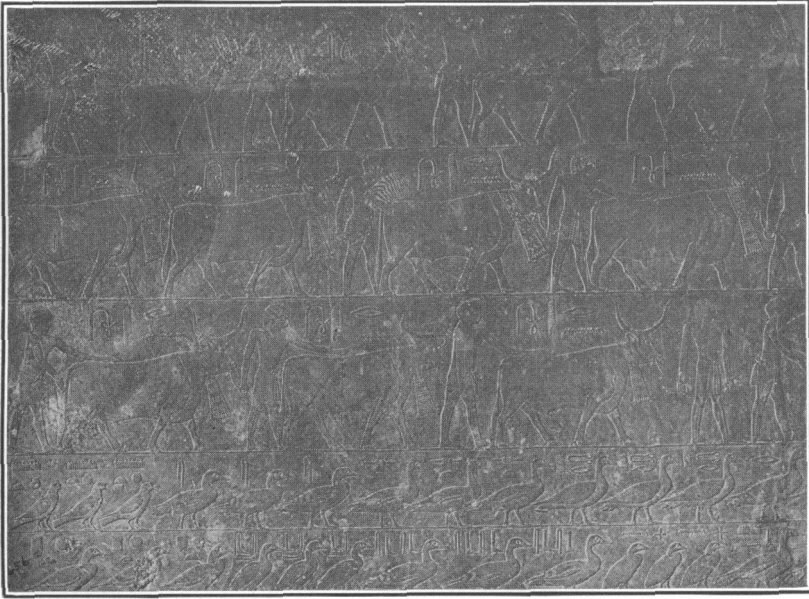


FIG. 29. CATTLE INSPECTION INCLUDING SEMI-DOMESTICATED ANTILOPES ALONG WITH DOMESTICATED CATTLE. As shown in reliefs from the tomb of Manofer, now in the Berlin Museum (27th century B.C.).

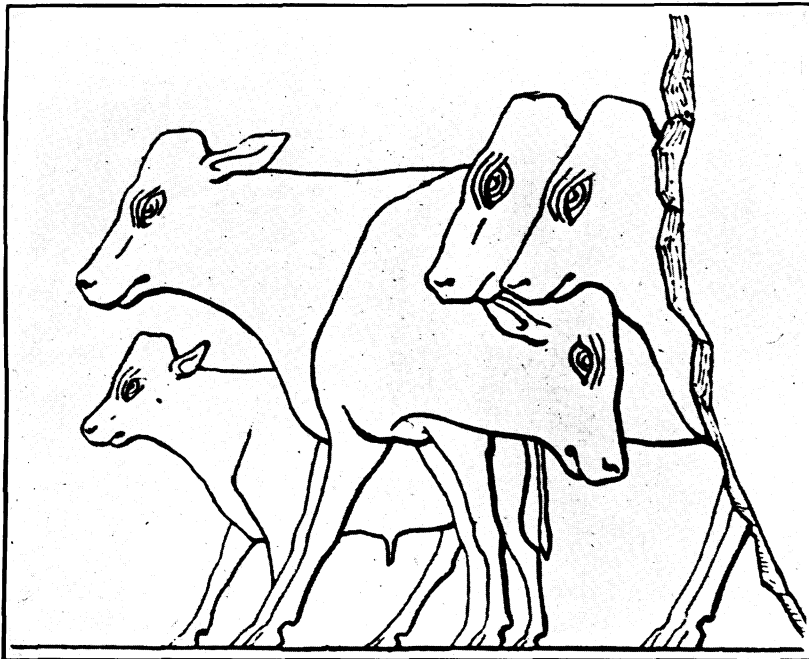


FIG. 30. HORNLESS BREED OF EGYPTIAN CATTLE. From a tomb relief at Gizeh, 29th century B.C.

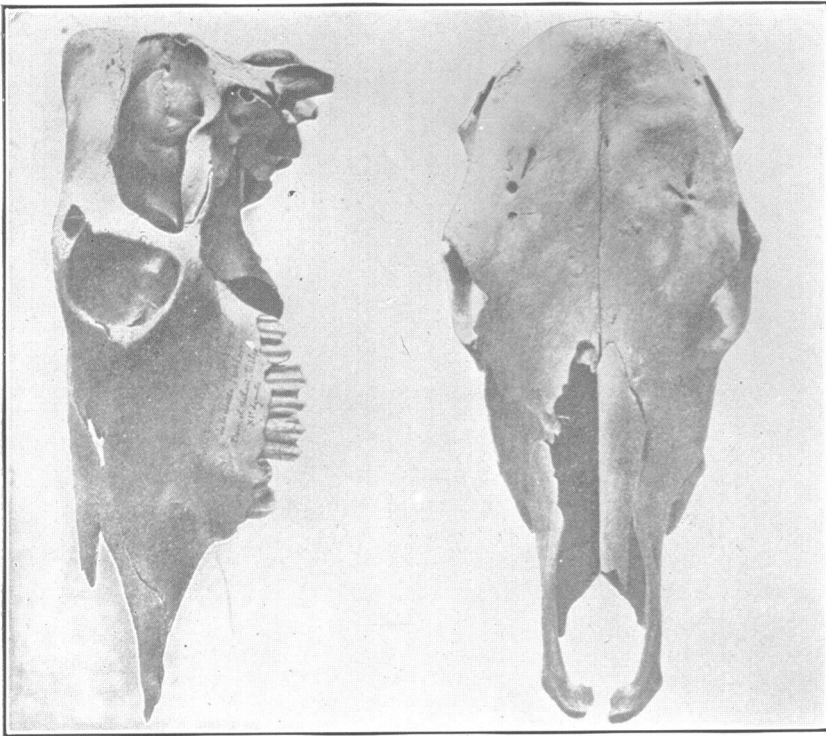


FIG. 31. SKULL OF A HORNLESS BREED OF ANCIENT EGYPTIAN CATTLE. Taken from an XIth Dynasty tomb (2160-2000 B.C.). (After Lortet and Gaillard, "Faune momifiée.")

breeding. For not only had they early developed a short-horn variety out of the long-horn, which was not identical with the Asiatic short-horn (*Bos brachyceros*), but at the same time they also bred a hornless variety of cattle (Fig. 30) (*Bos akeratos*). The actual skulls of this hornless breed have survived (Fig. 31).

A series examined by Lortet led him, like Duerst, to conclude that this hornless breed of cattle was the result of long and persistent selective breeding, very intelligently carried on. In this case we would have here a situation like that which we found in the case of the domesticated grains. Wheat with ages of selective cultivation behind it, has been found in the earliest known graves in the world. Similarly the oldest domesticated herds known to modern science, that is the oldest cattle in the world, would, according to Lortet and Duerst, already include a hornless breed produced by long-continued selective propagation.

On the other hand Professor Charles B. Davenport, director of the Department of Experimental Evolution of the Carnegie Institution, has kindly informed me that "hornlessness in cattle has probably arisen many times as a sport or mutation," and might then be continued and perpetuated by selective breeding. He concludes that the hornless breed of ancient Egypt arose and was continued in this way. In either case intelligently practised cattle-breeding on the part of the Nile dwellers at a very early date is evident.

We can understand therefore, that the production of milk-producing cattle was the result of long-continued and intelligently directed selective breeding, already completed by 3000 B.C. That the milk breed had not yet become wholly accustomed to the artificial abstraction of milk by the hand of man is evident from the fact that in practically all such dairy scenes, the hind legs of the cow have been elaborately tied (Fig. 32). It is perhaps of importance to note also that the calf is kept in the vicinity, and its eagerness for maternal food is restrained by another herdsman while the milking process goes on.

It is thus evident that conditions both in agriculture and cattle breeding in the Nile valley at the earliest stage when they are observable by us, point clearly back to a long antecedent development, beginning far away in the remote ages when the Nile dwellers lived on the lower alluvium, where the remains of their life are still buried.

The domestication of cattle, like that of donkeys, reacted powerfully on agriculture, as it was gradually discerned that the hoe might be replaced by the ox-drawn plow. Nothing shows more clearly the evolution of Egyptian civilization as a Nile valley process, than the unnoticed fact that the plow drawn

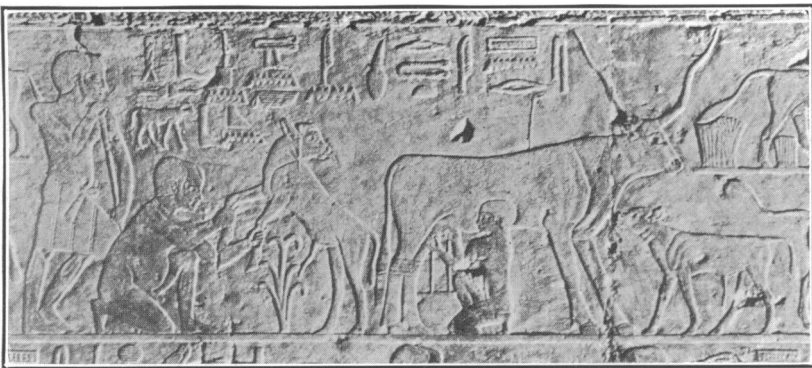


FIG. 32. EGYPTIAN HERDSMEN MILKING. Relief scene in the tomb of Ti at Sakkara, 28th century B.C.

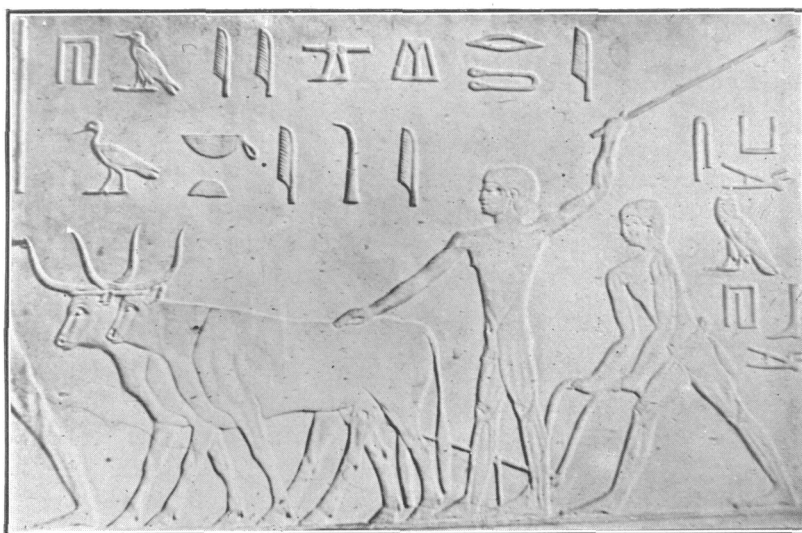


FIG. 33. EGYPTIAN PEASANTS PLOWING. From a tomb relief of the 26th-27th century B.C., now in the Louvre in Paris.

by oxen is simply the old prehistoric wooden hoe equipped with necessary modifications. The primitive form of the Egyptian plow is twice shown in the right-hand column of hieroglyphs in the plowing scene in Fig. 33. Now it can be demonstrated that Egyptian writing has preserved for us pictures of primitive and archaic forms of every day implements, which survived thus in the writing long after they had been displaced by improved forms and hence had ceased to be used in real life. Thus the inscription behind the plowman (Fig. 33) twice displays for us a tiny picture of a form of plow enormously older than the one here shown in actual use. It will be seen that the beam of the plow (in the inscription) is very short, and that the handles are almost too small for use. Indeed this oldest form of the Egyptian plow is little more than the hoe out of which it has developed.

The wooden hoe of the Egyptian peasant (Fig. 34) was made up of two pieces: one, the handle, abnormally short; the other, the blade, disproportionately long. With the exception of the tiny handles shown in the archaic plow just examined in the writing, this hoe is identical with the plow.

An old Egyptian drawing of a plow of about 2000 B.C. (Fig. 34) exhibits clearly the origin of the implement. The handle (of the hoe) has been lengthened to become the beam (of the plow) while the handles for the plowman's use have been sec-

ondarily attached at the point of junction of beam and hoe-blade or plow-share. The builder really constructed a wooden hoe with somewhat elongated handle as plow beam, and then afterward attached the plow handles, which do not engage with the beam or the plowshare, as they would do if they were of one construction with them.

These facts make it certain that the evolution of plow culture from hoe culture took place *in the Nile valley*. Indeed we are here tracing in the gradually developing material basis of life, a process which bears the stamp of the Nile valley, and is unmistakably Nilotic throughout its course.

Here then, so far as we can see, for the first time in the career of man, and at only one point in the fringe of hunting life which encircled the whole Mediterranean, there grew up at its southeast corner (Fig. 2) far back in the fifth millennium before Christ, a community of Stone Age men who had gradually shifted from the hunting life to that of herdsmen and shepherds, plowmen and cultivators of the soil. While it may have required over six thousand acres to support a hunter and his family, a very few acres would maintain the grain-raising, cattle-raising Stone Age family, and the population must have greatly increased in numbers and in density. Such a body of population following the agricultural and cattle-breeding life at the southeast corner of the Mediterranean must inevitably have exerted an influence on surrounding populations. Such a diffusion as that which carried Central American culture traits

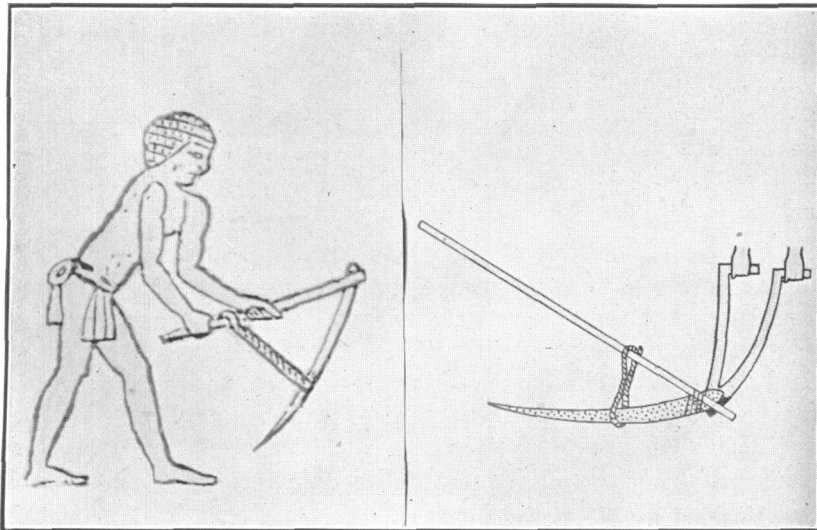


FIG. 34. AN EGYPTIAN WOODEN HOE AND THE WOODEN PLOW WHICH GREW OUT OF IT.

northward and southward until they penetrated far across both North and South America must inevitably have taken place. As to Europe this diffusion was all the easier, because the elevation of the land which made England a part of the neighboring continent, and joined Europe likewise to the mainland of Africa through Italy and Spain—this elevation continued far down into the Neolithic Age, and these land bridges must have been available long after the advances of Egypt just discussed were accomplished (Fig. 2). The same road by which the great African mammals migrated from Africa to Europe was unquestionably still open when the Nile dwellers first began to cultivate fields of grain and breed herds of cattle. It is no accident that the earliest grains of the Swiss Lake Dwellers were barley, emmer and millet, just as in the Nile valley. We have only to look at the dissemination of maize culture in North America from a Central American center to see how easy and inevitable such dispersion is. Moreover, we can actually trace cattle for some distance on the road from Egypt to Europe.

As far back as the middle of the fourth millennium B.C. the Libyans are shown by the Egyptian monuments to have possessed domesticated cattle, sheep and asses (Fig. 24). Such livestock plunder captured by the Egyptians from the Libyans is found in later reliefs also (Fig. 35), which show us large cattle, donkeys, sheep and goats in the possession of a people whose territory stretched far westward along the northern coast of Africa toward Tunis and the region opposite Italy. Thus in remote prehistoric times, Stone Age Europe so long retarded by the ice and cold, began to profit by the progress of the more favored and hence more advanced region at the southeast corner of the Mediterranean. The Neolithic peoples of southern and central Europe were thus able to make the transition from the hunting life, to that of settled communities following agriculture and cattle-breeding. This Neolithic life of Europe, preserved to us especially in the Lake Villages of Switzerland and the *terramare* settlements of the Po valley, was unable to advance by itself to the conquest of metal and the invention of writing, and thus to gain civilization. While interesting, it is of minor importance for the theme of these lectures. Entirely dependent upon the eastern Mediterranean, this Neolithic culture of the West never swung into the current of civilized life until after Greek and Phœnician colonization, and finally Roman conquest gradually civilized it. Its chief importance for our theme is its illustration of the earliest great contribution of the Orient to Europe, as cattle and domesticated grain found their

way across the Mediterranean. The position of this contribution in the long continued westward drift of culture will be found suggested later in Fig. 134.

It now seems to be exceedingly probable, if not a demonstrated fact also, that the south and west European communi-

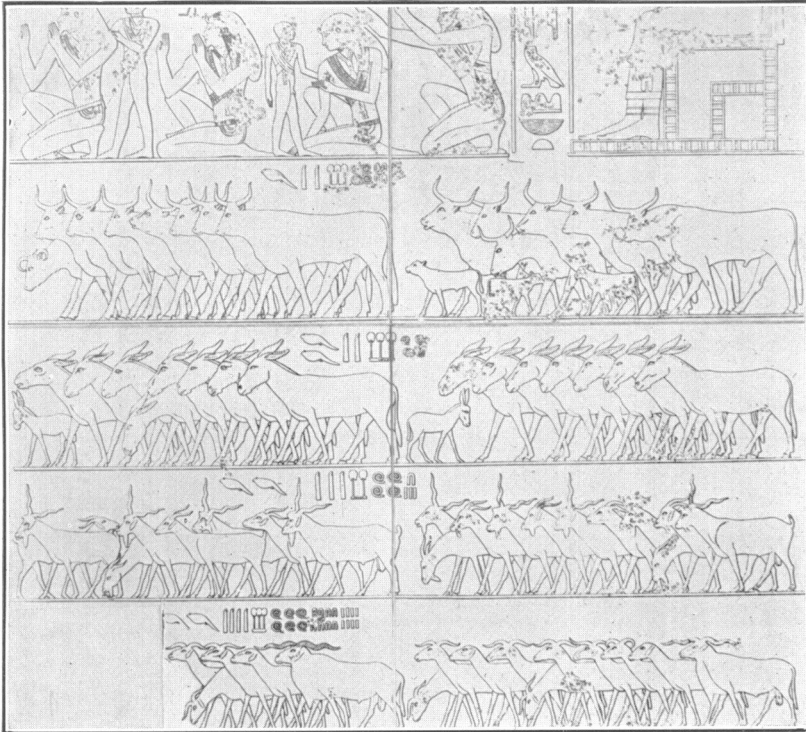


FIG. 35. DOMESTIC ANIMALS OF THE LIBYANS CAPTURED BY THE EGYPTIANS. (28th century B.C.) Compare also Fig. 24. (After Borchardt.)

ties who inaugurated the Neolithic culture of Europe, were of the same race as the prehistoric peoples on the south side of the Mediterranean, or at least as these Egyptians whom we find in the earliest cemeteries. Giving all due consideration to the wide divergence of opinion among the physical anthropologists, it would seem that the studies of Elliot Smith among the largest series of prehistoric Egyptian bodies yet investigated, have demonstrated clearly the identity or close affinity between these prehistoric Egyptians and the south Europeans of the great peninsulas, called by Sergi the Mediterranean race. As Smith has shown in a restoration of a profile from an early predynastic skull (Fig. 36), and as we see also in a late pre-

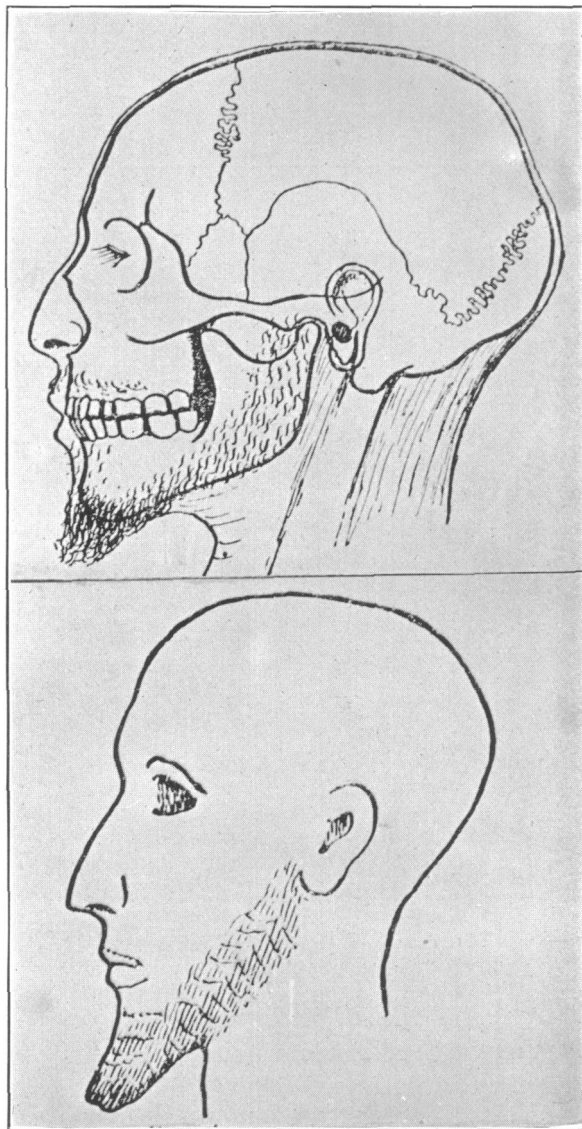


FIG. 36. PROFILE OF A PRE-HISTORIC EGYPTIAN (ABOVE) RESTORED FROM AN EARLY PRE-DYNASTIC SKULL BY DR. ELLIOT SMITH, AND HEAD OF A LATE PRE-DYNASTIC STATUETTE. (The latter after Quibell, "Hierakonpolis.")

dynastic statuette, the prehistoric Egyptians were a narrow-headed, long-faced, dark-haired, and almost certainly dark-eyed race. They were rather low in stature (the men a little under 5 feet 5 inches; the women almost 5 feet), and they were of slender build. They were not negro or negroid, and their kin are to be found in Europe, rather than in Africa.

It must have been after a very long career as a settled agricultural and cattle-raising people, that these dwellers on the Nile alluvium discovered and began to use metal. Unlike the domestication of grain and cattle, the introduction of metal was hardly earlier than the dawn of civilization. We can therefore trace the incoming of metal as we cannot follow the rise of agriculture and cattle-breeding. The graves of our early cemeteries (Fig. 22) disclose to us not merely cultivated grain and domestic cattle, but also metal. For in the very earliest of the predynastic graves we find copper needles with the eye produced by bending the butt around in a hook-eye (Fig. 37). Copper beads and bracelets also show that the earliest use of the metal was chiefly for ornaments. These needles are the earliest implements of metal smelted and wrought by man; for they carry this primitive and limited use of the metal back into the fifth millennium B.C., that is back of 4000 B.C. Man thus began to smelt and use metal about six thousand years ago.

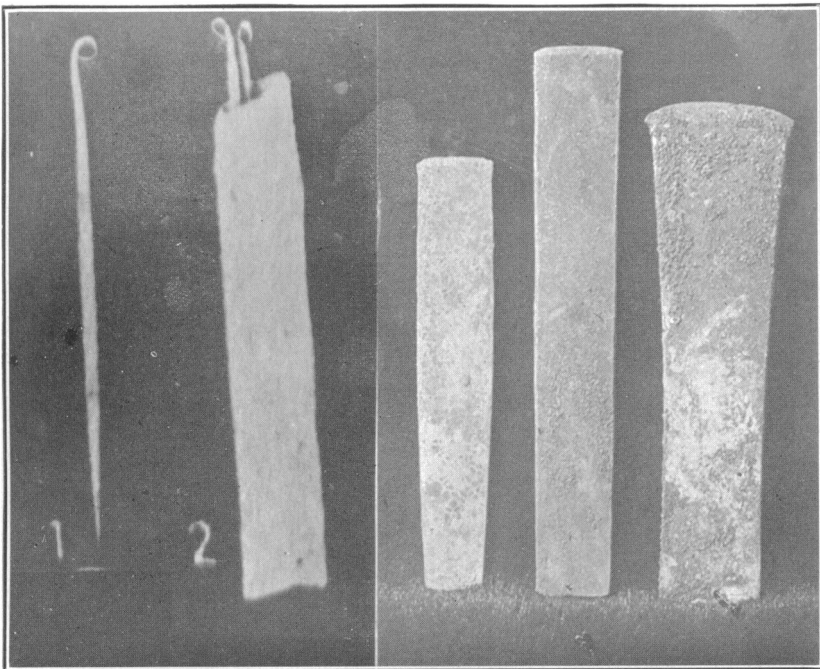


FIG. 37. COPPER NEEDLES WITH HOOK-EYES, THE EARLIEST KNOWN IMPLEMENTS OF METAL. Such needles are found in Egyptian graves dating before 4000 B.C. (After Reisner.)

FIG. 38. THE EARLIEST KNOWN METAL TOOLS: CHISELS OF COPPER FOUND IN PRE-DYNASTIC EGYPTIAN GRAVES ABOUT 35TH CENTURY B.C. (Photo by Petrie.)

Gradually the Nile-dwellers learned that the metal which they were using for ornaments might be made into tools and weapons, giving them a new power over men and nature. With tools and weapons like these (Fig. 38), which appear in the late pre-dynastic graves by the middle of the fourth millennium B.C., when all the world was elsewhere using only stone implements and weapons, the life of man entered upon a new epoch and at the southeastern corner of the Mediterranean a mechanically gifted people began to respond rapidly to the possession of this new source of power. This response of an ingenious people to the possession of metal culminated in the emergence of a united nation, the first great social and administrative structure erected by man, whose organized capacity was, half a millennium later, to be expressed in monumental form in the pyramids of Gizeh.

The process of political unification which went on among the prehistoric petty kingdoms and chieftaincies distributed along the Nile, is only dimly discernible in the scanty monuments surviving from this remote age. We see these early leaders bearing pointed metal weapons in the hunt, for the Nile-dwellers continued their old hunting habits for thousands of years after the rise of civilization. Monuments from the middle of the fourth millennium show us the Nile chieftains still following the chase (Fig. 39). But even such a document as this hunting scene (Fig. 39) also clearly discloses something of the vast social and governmental progress made by the earliest men, a progress which had carried them away from reliance on the chase, toward the possession of a stable food

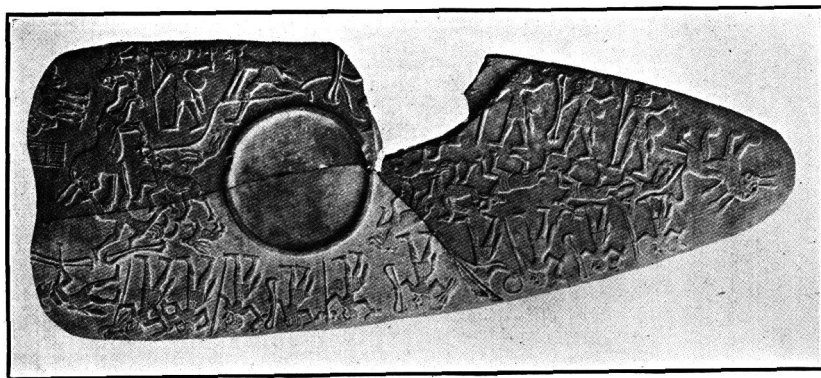


FIG. 39. NILE CHIEFTAINS OF THE MIDDLE OF THE FOURTH MILLENNIUM B.C. ENGAGED IN HUNTING. Depicted in a relief on a slate palette used for grinding face paint. (After Legge in *Proceedings of the Society of Biblical Archaeology*, Vol. XXII.)



FIG. 40. A ROYAL DIGGING CEREMONY OF EARLY DYNASTIC AGE DEPICTED IN A RELIEF ON A CEREMONIAL MACE-HEAD. (From Quibell, "Hierakonpolis.")

supply available to large communities abiding in fixed dwelling places. These hunting chieftains carry standards on which are mounted symbols signifying political divisions—the earliest such symbols known. We recognize in them prehistoric forms some of which are well known to us in later hieroglyphic signs. Thus the fifth hunter in the upper line carries a symbol mean-

ing "the East" in the hieroglyphic of half a millennium later. Each hunter also wears attached to his girdle behind, the tail of a wild animal—a symbol retained in historic times only by the Pharaoh.

One of the most powerful influences toward unity and organized development in a rainless climate like that of Egypt, was the necessity of creating an ever more complicated irrigation system. To maintain such a system, to keep each of its long canals free from obstruction, and to control the supply of water, required the cooperation of large groups of communities, created a consciousness of community of interest and a willingness to submit to a central authority in control of the whole. One of the ancient prehistoric rulers shown in Fig. 40 beside a canal wielding an archaic wooden hoe, is evidently engaged in ceremonially digging up the earth, for which his attendant holds a basket. Such a ceremonial act may well have marked the beginning or dedication of some irrigation canal. Thus the possession of grain fields, and the maintenance of herds which must be pastured, bound great groups of communities to a common system for the support of the whole, which could never have grown up among the hunting chieftains of earlier days.

By the middle of the forty-third century B.C., this system had brought forth a calendar of twelve thirty-day months, and five feast days at the end of the year. This is the calendar which has descended to us through the Romans, though it should be observed that the Egyptian rulers were far too practical to make a calendar which would oblige their people to learn a verse of poetry in order to find out how many days there were in a given month.

(To be continued)